Council File # 09-1377
Green Sheet # 3090237

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RESOLUTION
CITY OF SAINT PAUL, MINNESOTA

Presented by

RESOLUTION TO IMPLEMENT SAINT PAUL SUSTAINABLE BUILDING POLICY

WHEREAS, Saint Paul wants to be the most livable city in the United States; and

WHEREAS, livability includes ensuring healthy communities and healthy lives for Saint Paul citizens; and

WHEREAS, by signing the US Conference of Mayors Climate Protection Agreement, Mayor Coleman has specifically committed Saint Paul to reducing greenhouse gas emissions to seven percent below 1990 levels by 2012; and

WHEREAS, carbon dioxide (CO_2) emissions, resulting from human activity, are a significant contributor to the greenhouse effect that is causing global climate change and buildings account for nearly 40% of U.S. CO_2 emissions; and

WHEREAS, construction and demolition waste account for nearly a third of the solid waste generated in the Twin Cities metropolitan area; and

WHEREAS, taking proactive steps with regard to built structures will help protect our City's air, water and urban landscape by focusing on carbon dioxide reduction, energy efficiency and conservation, clean energy supply, alternative transportation, water quality, recycling, waste reduction, green space and reforestation; and

WHEREAS, since 2007, Saint Paul has had a policy (Council File 07-70) to seek and receive Leadership in Energy and Environmental Design (LEED) Silver certification or utilize the State of Minnesota Sustainable Building Guidelines (State Guidelines) in the planning, design, construction, commissioning, and major renovation of municipal facilities financed by the City of Saint Paul and utilized by the City's Executive Departments, the Saint Paul Public Library and the City of Saint Paul Division of Parks and Recreation; and

WHEREAS, when a City building is constructed or renovated to LEED standards, the State Guidelines related to "Energy and Atmosphere," including exceeding the energy code by at least 30%, must also be met and the State Guidelines related to Performance Management requirements must be adhered to; and

WHEREAS, the Interim Saint Paul PED / HRA Sustainable Development Initiative requires developers seeking City or HRA funds to take advantage of City authorized design and assistance programs, including but not limited to Xcel Energy's Energy Design Assistance Program or the ENERGY STAR program for homes; and

WHEREAS, rating systems that assign points to various "green" achievements have become an accepted way to evaluate a building's sustainable attributes; and

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WHEREAS, such rating systems do not always reflect local priorities, values, and concerns, and
WHEREAS, the Mayor's Advisory Committee on Green Policy Development has recommended that the City adopt a Sustainable Building Policy;

NOW, THEREFORE BE IT RESOLVED, that the City of Saint Paul and the Housing and Redevelopment Authority (HRA) adopt a Sustainable Building Policy (Policy) with which any new construction project receiving more than $200,000 in City and/or HRA funding, is required to comply; and be it

FURTHER RESOLVED, that City and/or HRA funding is defined as money originating from Community Development Block Grant (CDBG), Tax Increment Financing (TIF), HOME Investment Partnership Program (HOME), Multi-Family Housing Revenue Bonds, federal Low Income Housing Tax Credits (LIHTC), other federal, state, and Metropolitan Council funding programs, HRA funds, any City of Saint Paul funds, including STAR, from any combination of loans, grants, land writedown or other funding vehicles; and be it

FURTHER RESOLVED, that the Policy does apply to parking structures and parking lots and any addition to an existing building that includes a new heating/ventilation/air conditioning (HVAC) system; and be it

FURTHER RESOLVED, that the Policy does not otherwise apply to existing structures; and be it

FURTHER RESOLVED, that the Department of Planning and Economic Development (PED) and the Department of Safety and Inspections (DSI) will jointly create a Sustainable Building Technical Committee (Committee) that will oversee implementation of the Policy and consider requests for variances; and be it

FURTHER RESOLVED, that a private sector representative will serve on the Committee and a developer's representative will be invited to Committee meetings when a project of that developer is being reviewed; and be it

FURTHER RESOLVED, that to assist the Developer comply with the Policy, whether the Developer is required to comply or is doing so voluntary, the City will:

1. provide, at no additional cost to the Developer, a Sustainability Facilitator within PED to help guide each project through the development process, ensuring adherence to the Policy, and
2. at the Developer's request, help identify sustainable design experts with in-depth experience on specific issues, whether site, building, or operational, and
3. work with Xcel Energy to provide, at no cost to the Developer, energy modeling in the design stage for all participating projects meeting Xcel Energy's requirements, and
4. work with District Energy to assist with energy modeling and other analysis and assistance during the design stage for all participating projects meeting District Energy's requirements, and
5. at the Developer's request, help locate building commissioning agents to verify performance against design requirements, and
6. negotiate, as part of a Development Agreement, signage and labeling for compliant buildings both during and post-construction; and be it

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FURTHER RESOLVED, that the Developer must choose for the project one of the following rating systems and levels with which to minimally comply:

Commercial Projects:

- LEED New Construction (NC) 2.2, Silver or
- Green Globes, 2 globes or
- State Guidelines Building Benchmarking and Beyond (B3) Compliant or
- Saint Paul Port Authority Green Design Review (as applicable)

Residential Projects:

- LEED for Homes (H) or LEED NC1, Silver or
- Minnesota GreenStar, Silver or
- Green Communities, Minnesota Overlay Compliant; and be it

FURTHER RESOLVED, that the following mandatory requirements, to be known as the Saint Paul Overlay, must be met within the Developer's chosen rating system:

1. Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.
2. Predicted use of potable water in the building must be at least 30% below EPA Policy Act of 1990.
3. Predicted water use for landscaping must be at least 50% less than a traditionally irrigated site using typical water consumption for underground irrigation systems standards.
4. Actual solid waste of construction materials, excluding demolition waste, must be at least 75% recycled or otherwise diverted from landfills.
5. Indoor Environmental Quality must be addressed through the following strategies:
    a. ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007
    b. construction IAQ management plan
    c. low-emitting materials
    d. thermal comfort
6. Storm Water Management Requirements:
    a. Site Eligibility: Sites with ¼ acre or more of total land disturbance
    b. Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed
    c. Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP), by implementing Best Management Practices (BMPs) outlined in "Urban Small Sites Best Management Practices" handbook (Metropolitan Council), "Protecting Water Quality in Urban Areas" handbook (Minnesota Pollution Control Agency), the "Minnesota Storm water Manual" (Minnesota Pollution Control Agency). All BMP treatment systems for subject site need to include safety factors, maintenance, and a back-up plan in case of failure. All manufactured devices require independent laboratory testing to confirm product claims.

[1] For large multi-family residential projects, LEED for New Construction is the standard rather than LEED for Homes.

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d. Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions.
e. Operation and maintenance: All practices must have an O and M plan.

7. Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner.
8. Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database, by the building owner or by the building's utility service provider(s) with permission of the owner; and be it

FURTHER RESOLVED, that each project's compliance with the Green Building Policy must be verified, in accordance with the verification method specified by the Developer-selected rating system; and be it

FURTHER RESOLVED, that in the event of notification of non-compliance, and reasonable opportunity to cure, the City will refer the project to the Sustainable Building Technical Committee, which will consider remedial action, and make recommendations to the HRA Executive Director or his/her designee; and be it

FURTHER RESOLVED, that upon a recommendation from the Sustainable Building Technical Committee, the HRA Executive Director or his/her designee may require remedial action, limited to the amount of funds granted to the Developer; and be it

FURTHER RESOLVED, that the requirements of the Policy may be waived, in whole or in part, by the HRA Board after consideration of the advantages and disadvantages of a waiver, and upon showing by the Developer a compelling public purpose; and be it

FURTHER RESOLVED, that the Policy will apply to projects for which schematic design is initiated after July 1, 2010; and be it

FINALLY RESOLVED, modification or expansion of the Policy requires assembly of a Sustainable Building Policy Committee, analysis by the Sustainable Building Technical Committee, and a City Council public hearing prior to enactment.

	Yeas	Nays	Absent
Bostrom	✓		
Carter	✓		
Harris	✓		
Helgen	✓		
Lantry	✓		
Stark	✓		
Thune			✓
	6	0	1

Adopted by Council: Date 12/16/09

Adoption Certified by Council Secretary

By: Mary Erickson

Approved by Mayor: Date 12/22/09

By: Sara Grewing

Requested by Department of:

By:

Approved by the Office of Financial Services

By:

Approved by City Attorney

By:

Approved by Mayor for Submission to Council

By:

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04-1377

Green Sheet NO: 3090237

Department/Office/Council:	Date Initiated:
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	Department	Sent To Person	Initial/Date
0			
1	Council		
2	Council		
3	City Clerk		
4			
5			

Total # of Signature Pages _____ (Clip All Locations for Signature)

Action Requested:

Approval of resolution adopting a Sustainable Building Policy with which any new construction project receiving more than $200,000 in City and/or HRA funding, is required to comply.

Recommendations: Approve (A) or Reject (R):

_____ Planning Commission

_____ CIB Committee

_____ Civil Service Commission

_____ _____

_____ _____

_____ _____

_____ _____

Personal Service Contracts Must Answer the Following Questions:

1. Has this person/firm ever worked under a contract for this department?
   Yes No
2. Has this person/firm ever been a city employee?
   Yes No
3. Does this person/firm possess a skill not normally possessed by any current city employee?
   Yes No

Explain all yes answers on separate sheet and attach to green sheet.

Initiating Problem, Issues, Opportunity (Who, What, When, Where, Why):

Advantages If Approved:

Disadvantages If Approved:

Disadvantages If Not Approved:

Total Amount of Transaction:

Cost/Revenue Budgeted:

Funding Source:

Activity Number:

Financial Information: (Explain)

RECOMMENDATION:

A SUSTAINABLE BUILDING POLICY FOR SAINT PAUL

NOVEMBER 2009

REPORT PREPARED BY:

ELLEN T. BROWN, CONSULTANT

AND

JOHN CARMODY AND RICHARD STRONG,

CENTER FOR SUSTAINABLE BUILDING RESEARCH,

UNIVERSITY OF MINNESOTA

EXECUTIVE SUMMARY

Achieving Saint Paul's goal of becoming the most livable city in America requires action on many fronts. One is working to reverse the effects of environmental degradation that impair healthy living: reducing global warming, ensuring good air and water quality, providing healthy indoor environments and reducing solid waste.

Creating environmentally sustainable buildings is a key step in this reversal.

Why do buildings play such an important role? "In the United States, buildings use one third of our total energy, two-thirds of our electricity, one-eighth of our water, and transform land that provides valuable ecological services. Atmospheric emissions from the use of energy lead to acid rain, ground-level ozone, smog, and global climate change. Because of these fundamental environmental issues, and in addition to the increasing cost of energy, it is vitally important to consider the adoption and implementation of energy efficient building codes as sound public policy in any rebuild effort."*

In January 2007 with Mayor Chris Coleman's support, the Saint Paul City Council unanimously adopted a requirement that all new City buildings, and those undergoing major renovation, must comply with the Minnesota Sustainable Building Guidelines (B3) or achieve a Leadership in Energy and Environmental Design (LEED) Silver status, LEED being one of the preeminent rating systems for judging environmental sustainability. The first building constructed under this policy was the Saint Paul Western District Police Station on Hamline Avenue.

Expanding on the commitment to its own buildings, the City sought a grant from the Minnesota Pollution Control Agency to develop recommended changes to City policies and practices that govern and manage new private development with public investment. With the guidance of a 50-person Advisory Group, a dozen-member Core Work Group has crafted a Sustainable Building Policy recommendation and outlined its integration into Saint Paul's development process. (Advisory and Core Group members are identified in Appendix A.)

The Environmental Law Institute published a report in April 2008 reviewing more than 25 municipal policies that advance green building in the private sector.† The policies include: (1) establishing mandatory green building criteria; (2) providing expedited review as an incentive for green building; or (3) offering other direct financial incentives

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* www.adaweb.net/departments/developmentservices/documents/WHYAREENERGYCODESIMPORTANT.pdf

† "Municipal Green Building Policies: Strategies for Transforming Building Practices in the Private Sector", Environmental Law Institute, Washington DC, April 2008. http://www.elistore.org/reports_detail.asp?ID=11295

for green building, including grants, fee waivers, tax breaks, and bonus development. The recommended Saint Paul Sustainable Building Policy offers some benefits and incentives for participation but relies principally on requiring certain private development to comply with its requirements.

The key elements of the proposed Policy follow.

- Assistance in sustainable design and implementation, as described in the City Council Resolution, will be offered to all projects that follow the Sustainable Building Policy, whether by requirement or voluntarily;
- Policy compliance will be required of new construction projects receiving more than $200,000 in City funding from any combination of loans, grants, land writedown or other funding vehicles;
- Projects must achieve a designated level in one of seven rating systems such as LEED Silver for New Construction; and
- Prerequisite conditions must be fulfilled related to seven priority environmental factors and operational data on energy use must be reported annually ("the Saint Paul Overlay")

In implementation, the Saint Paul Department of Planning and Economic Development (PED) will designate one or more Sustainability Facilitators to shepherd projects through the development process, ensuring smooth compliance with the Sustainable Building Policy. At the developer's* request, PED will assist in locating sustainable design experts with in-depth experience to assist them with specific issues. These experts may be city staff, employees of non-profit organizations such as the Saint Paul on the Mississippi Design Center, or private consultants.

Verification of compliance with the Policy at the completion of construction will be managed according to the developer's chosen rating system. Some require third-party certification; others require a simple affidavit of compliance from the designer, developer or owner.

After two years of implementation, City staff will review the Sustainable Building Policy's workability and goal attainment, making adjustments as necessary. At that time, application to a wider range of projects will be considered as well as potential adjustment to a higher level of performance.

Using current development projects for comparison, it is estimated that 15 - 20 projects per year would be required to comply with the Policy. Given market forces that are creating increasing demand for "green" buildings nationwide, we estimate that developers might seek sustainable design and implementation assistance for an equal number of projects complying with the Policy voluntarily.

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* The term "developer" is used to indicate the recipient of City funds for a construction project or the developer of a project who is voluntarily complying with the Policy.

Building green is not only good for the environment; it is good for the building owner's bottom line. Many studies have shown the increased cost of a project from the type of policy proposed here to be in the 2% - 3% range with paybacks from 3 to 10 years. (These studies are presented with more detail in Section 2: Costs and Benefits of Building Green.) Perhaps the most persuasive data on the benefit to the owner though is the U.S. Green Building Council's (USGBC) certification of nearly 2000 projects with another 15,000+ in the pipeline. It is unlikely the market would grow at this level if significant cost savings were not possible.

INTRODUCTION

Saint Paul wants to be the most livable city in America. Along with other factors such as expanding economic opportunity, ensuring public safety and providing quality and accessible education, Mayor Chris Coleman describes livability as ensuring healthy communities and healthy lives for Saint Paul citizens. Part of this goal is:

> *taking proactive steps to protect our City's air, water and urban landscape by focusing on carbon dioxide reduction, energy efficiency and conservation, clean energy supply, alternative transportation, water quality, recycling, waste reduction, green space and reforestation.*

By signing the US Conference of Mayors Climate Protection Agreement, Mayor Coleman has specifically committed Saint Paul to reducing greenhouse gas emissions to seven percent below 1990 levels by 2012. Achieving this goal will require that buildings in Saint Paul are constructed and operated sustainably.

Carbon dioxide (CO_2) emissions, resulting from human activity, are a significant contributor to the greenhouse effect that is causing global climate change. Buildings account for nearly 40% of U.S. CO_2 emissions and total energy consumption, as well as some 70% of electricity consumption.* Buildings use 30% of raw materials in the U.S. Construction and demolition waste accounts for nearly a third of the solid waste generated in the Twin Cities metropolitan area. Clearly, the built environment must become more environmentally sustainable if Saint Paul is to comply with the Climate Protection Agreement.

A Sustainable Saint Paul initiative, begun in 2005, coordinates Saint Paul's efforts in environmental protection and sustainability. Projects cover the breadth of environmental issues: transportation and transit, development, clean air, water treatment, rivers/lakes/ streams/wetlands, natural resources, energy conservation, water reduction and recycling. Created by the City in July 2005, an interdepartmental work group on environmental sustainability has concentrated on city practices. Their work led to adoption of the requirement that all new City buildings, and those undergoing major renovation, must comply with the Minnesota Sustainable Building Guidelines or achieve a LEED Silver status

Then in 2007 the Mayor's office undertook a project, with funding from the Minnesota Pollution Control Agency (MPCA), to create policies, procedures and regulations to support and guide sustainable ("green") development within the City.

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*Green Building by the Numbers, USGBC, September 2008. www.usgbc.org/DisplayPage.aspx?CMSPageID=1718

An Advisory Group with representatives from the design and construction industries, developers, bankers, regulatory agencies and others provided guidance. A Core Work Group of City staff and industry representatives crafted the recommendations. The effort was led by Saint Paul consultant Ellen T. Brown and John Carmody and Richard Strong with the Center for Sustainable Building Research at the University of Minnesota. This report presents the recommendations of the group. (See Appendix A for a list of participants.)

The key elements of the proposed Policy, each of which is addressed in detail below; are:

- Policy compliance will be required of new construction projects receiving more than $200,000 in City funding, from any combination of loans, grants, land writedown or other funding vehicles;
- Assistance in sustainable design and implementation, as described in the City Council resolution, will be offered to all projects that follow the Sustainable Building Policy, whether by requirement or voluntarily:
- Projects must achieve LEED Silver or equivalent level from one of seven rating systems or guidelines: and
- Prerequisite conditions must be fulfilled related to seven priority environmental factors and operational data on energy use must be reported annually ("the Saint Paul Overlay").

Before looking at the policy in detail, consider the cost and benefits of building green.

COSTS AND BENEFITS OF BUILDING GREEN

The demand for green buildings—whether commercial, industrial or residential—is increasing nationwide. This growth has come despite the commonly held belief that green construction is substantially more expensive than traditional methods. In fact, cost data belie this belief and market growth supports the data. Over the past eight years, the U.S. Green Building Council had certified as green nearly 2000 projects, with another 15,000+ in the pipeline.

In the residential market, "[we] have hit the tipping point for builders going green," said Harvey M. Bernstein, McGraw-Hill Construction vice president of Industry Analytics, Alliances and Strategic Initiatives. "This year, the number of builders who are moderately green—those with 30% green projects—has surpassed those with a low share of green—those who are green in less than 15% of their projects. Next year, we will see even greater growth, with highly green builders—those with 60% green projects—surpassing those with a low share of green. This year has seen an 8% jump over last year, and we expect another 10% increase next year." [*]

An assessment of additional design and construction costs for green buildings are difficult to come by for several reasons. Most projects are not priced equally in both the green and a non-green mode. The capital costs of building green are frequently borne by a different party than the operational cost savings realized (the combination of the two is commonly referred to as life cycle cost). And each building is unique in location, site, design, use, etc so side-by-side comparison to other buildings is very difficult

But, in a recent study of 33 properties in California that did compare costs of green vs. conventional construction, the upfront cost of going green was about 2 percent higher. This amounted to about $3 to $5 per square foot.[†] Despite such evidence, from this and other reports, that building green is only modestly more expensive, in a 1400 person global survey in 2007, respondents reported their perception that the additional cost of building green is 17 percent above conventional construction.[‡]

The USGBC estimates that the annual U.S. market in green building products and services was more than $7 billion in 2005, $12 billion in 2007 and projected to increase to $60 billion by 2010.[§] If there were not cost savings and environmental protection to be gained from green construction, it seems unlikely that the market would be growing exponentially.

The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force, finds that an upfront investment of less than two

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[*] www.construction.com/AboutUs/2008/0512pr.asp
[†] ezinearticles.com/?Is-Green-Construction-More-Expensive?&id=447481
[‡] www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=MjU5MTM
[§] www.usgbc.org/DisplayPage.aspx?CMSPageID=124

percent of construction costs yields life cycle savings of over ten times the initial investment.* When New York City adopted green requirements for municipal buildings in 2006, a financial analysis indicated that the savings associated with reduced energy and water costs alone would offset debt service payments on any increase in capital expenditures resulting from the ordinance.†

Approaching building green from a life-cycle cost point of view is key. The USGBC estimates that green buildings on average trim energy costs by 30 percent and carbon emissions by 35 percent, cut water usage by 30 percent to 50 percent, and generate a 50 percent to 90 percent reduction in waste costs. "The more you're optimizing your energy, the more money you're going to save in the long run for the operating and maintenance of the building."‡

An analysis by Capital E, a national provider of strategic consulting, technology assessment and deployment, and advisory services to firms and investors in the clean energy industry, examined 30 green schools built in the last five years. Average national school construction cost is $\$150/ft^2$, and the typical cost of greening was an additional $\$3/ft^2$, or an additional 2%. Over time, green schools use 30% less energy and water than conventional schools. These changes save water and reduce carbon emissions, and result in direct savings of $\$11/ft^2$ during the life of the school, which is almost four times the cost of greening.§

The Weidt Group is a local firm that provides software and sustainable design consulting services to architects, engineers, and owners in the process of building design. Their study reported that, for each building type evaluated in the study (libraries, middle/high schools, offices, retail), the mean and median simple paybacks [for high performance integrated energy design features incorporated in actual projects] were less than 3 years. ...Only two buildings exceeded 3 years.**

Maximizing cost savings and realizing long-term benefits requires very early incorporation of green design and construction methodologies into a project. If green measures are added as an afterthought, they will both cost more and be less effective in producing savings. But, if a project is designed from the first day with environmental factors in mind, additional costs will be minimal and the return on investment from life-cycle savings can be substantial. That is why these recommendations encourage and assist developers with early consideration of green design.

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* California Integrated Waste Management Board, October 2003
† www.constructionweblinks.com/Resources/Industry_Reports__Newsletters/Jan_15_2007/newy.html
‡ www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=3288
§ www.cap-e.com/ewebeditpro/items/O59F11233.pdf
** *Top Six Benefits of Building Green*, Weidt Group

WHAT OTHER CITIES ARE DOING

Dozens of cities across the U.S., and many more in Europe and elsewhere, have adopted policies to encourage or require environmentally sustainable buildings. Some have high standards, some lesser ones. Some are mandatory, some voluntary with incentives offered to encourage participation. In developing the recommendation for Saint Paul's Policy, we looked at many cities' policies. (See Appendices B and C.)

If adopted as recommended, this policy will make Saint Paul a Midwest leader and place us in about the middle of the group when compared with cities nationwide.

But Saint Paul will be among the few innovators that have addressed local priorities, as is proposed here with the Saint Paul Overlay. As the Environmental Law Institute reported in its 2008 review of municipal green building policies, "[a] key to developing an effective green building policy is aligning the elements of the policy with the political, economic and institutional circumstances of the municipality." *

Mandatory requirements vs. incentives

About half of the cities we reviewed have mandatory requirements that were adopted at the beginning of their program. Rarely does a city move from a voluntary program with incentives to a mandatory one.

One of the main incentives offered in voluntary programs is expedited processing of building permits, inspections, and other city reviews. Saint Paul's Department of Safety and Inspections (DSI) already has an exemplary track record in the timeliness of project review so expedited processing would provide only a nominal benefit in Saint Paul.

Some communities offer direct financial incentives ranging from property tax breaks to grants and fee waivers.† Obviously, this type of incentive depends on the financial resources of the municipality. The pressure on Saint Paul's property tax revenues and the recent reductions in local government aid from the State of Minnesota preclude the City from offering financial incentives at this time. However, in the future, the Advisory Group hopes the City will be able to consider incentives of this nature.

Bonus development incentives—such as allowing higher density, lower parking allowances, or similar variances from the norm—are often offered in other cities to encourage voluntary participation. In Saint Paul, a new Comprehensive Plan for the City

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*Environmental Law Institute, op cit., page.v.

† Direct financial incentives are more commonly related to a specific environmental factor such as water or energy use. But a few cities, listed in Table A, do have financial incentives tied to broad based green policies.

is nearing final approval. The Plan includes language encouraging the exploration of using these tools more in Saint Paul to achieve desirable development outcomes such as increasing the production of housing. These incentives could be expanded to include green development.

For now, the core aspect of the recommended policy for Saint Paul is mandatory participation for major city-funded projects with technical assistance incentives to encourage voluntary participation by others.

Broad vs. targeted application

Other cities' policies range from applicability to government buildings only to being required of all new construction in the community, with a number of versions in between these extremes. Some focus on small residential developments; others on the commercial sector, in whole or in part. Some apply only when city funds are involved, others when any city action...whether zoning approval, variance or some other action....is taken. Appendix C shows the applicability for the 30 largest metropolitan areas in the U.S.

Limiting application only to the commercial or industrial or residential sectors does not seem to make sense for Saint Paul, with its rich mix of all three sectors, unlike for a suburban community that might be seeing substantially more residential growth, for example.

Applying the Policy in a limited way to, for example, projects in the Central Corridor or to those in the immediate Mississippi River corridor would probably not present sufficient projects in two years to get a good reading of the Policy's workability.

Many communities use a minimum square footage threshold at which coverage by their policy would begin. This is particularly true when the city applies their policy to all construction of a certain type rather than limiting it to certain zoning districts or to those with public funding. With a monetary threshold of $200,000 in City investment, this recommended Policy does not need a square footage minimum.

Although the density of Saint Paul's existing development puts major new construction in a minority category vs. rehab/renovation, the latter type of project is often more difficult to evaluate in terms of sustainability. Not all the third party rating systems offer fully developed subsystems for rehabs and renovations. And as the scope of renovation projects can vary widely, it can be difficult to apply rating systems uniformly even when they are developed. For example, one project might fall in the LEED Commercial Interiors subsystem while another, more extensive one, would fit into LEED New Construction. In two years' time, we can expect that these systems will have been improved and more local firms will have developed experience in using them.

Existing buildings are the bulk of Saint Paul's land use. How these buildings operate—in water use, energy use, solid waste management, etc—probably have a greater impact on

our environmental sustainability than any other aspect we could regulate. Some interesting methods to incent building owners to more sustainable operations are in use* and more are being developed but working out the complications of implementation for existing buildings in Saint Paul were beyond the scope of this project.

Building Owners and Management Association (BOMA) International has issued a seven-point challenge to its members to reduce the use of natural resources, non-renewable energy sources and waste production. One quantitative goal is part of the challenge: reduce energy consumption by 30%. If adopted by the Saint Paul BOMA chapter, this program could provide a base from which to build an existing buildings policy.

In its first phase, Saint Paul's Policy will be mandatory only for new construction projects receiving more than $200,000 in city funds, as described in the City Council resolution. By limiting applicability in its first few years, the Policy can be judged for workability and goal attainment with a limited number of projects before being expanded to other project categories.

New policy vs. modification to existing policy

The cities with required polices have enacted them as legislation under different areas of municipal authority: municipal zoning, land use or planning codes. Some have made them part of the municipal building code (Boston and Scottsdale AZ are two), though most states restrict municipal authority to alter building codes.

Minnesota law prohibits any city's building code from being stricter or more lenient than that of the State code. Modifying Saint Paul's Building Code to include green requirements is not an option at this point.

The Zoning Code could be a vehicle for implementing sustainable requirements but it would not be a clean way. Zoning is about land use, not about the design and construction of what goes on the land, except for the siting of the building. Incorporating green design and construction requirements into the zoning code would confuse rather than clarify both.

The Sustainable Building Policy is presented here to be enacted as a stand-alone document.

* For example, to encourage water conservation, Boulder CO has implemented a water budget rate structure. A water use budget is set for each property based on building size/type/function and predicted or actual use data. The base rate for water is charged for use within 61% - 100% of the property's budget. Lower usage is billed at three-fourths of the base rate. Higher usage is billed at two, three or five times the base rate, depending on gallons of water used.

Existing certification system(s) vs. unique one

Flexible, point-based rating systems that assign points to various "green" attributes have become the accepted way to evaluate a building's sustainability. There are a number of third party systems. Some cover more than one type or project; others are only for either residential or commercial buildings. Each addresses the major environmental factors, some placing more emphasis in one area than another. Most have a combination of mandatory and optional requirements. Some require third-party certification; others permit first-party or self-regulation. They have been extensively tested in thousand of projects and in dozens of communities. Many professionals in the building industry are quite familiar with the systems. Using these systems greatly reduces the resources required of a city to design and enforce their policy.

The vast majority of municipal policies are based on one or more of these existing rating systems. A large majority of communities choose only one rating system, the USGBC's LEED system, though some also allow systems more customized to their region. This recommendation for Saint Paul proposes that developers have a choice of seven systems, each of which has its merits. In some types of projects, affordable housing for example, a rating system, Minnesota Green Communities, is already required by the Minnesota Housing Finance Agency. If a project has state as well as city funding, it must comply with the State's Sustainable Building Guidelines. Residential projects require different criteria than commercial ones. Excluding any of the recommended rating systems will put a hardship on a developer who may have to comply with two systems or use a system that is not geared to the particular type of project being developed. Also developers expressed the sentiment that they should be able to select the rating system that might most benefit their position in the marketplace.

At the same time, Saint Paul has its own priorities among the environmental factors these rating systems cover. Thus, specific prerequisite conditions must be fulfilled within each system. These prerequisites are recommended herein as the Saint Paul Overlay. By specifying them within each system, rather than establishing a separate framework, the burden of validating compliance is minimized.

Performance vs. prescriptive standards

Green building can be encouraged by performance standards that require certain outcomes or mandated by prescriptive standards that delineate certain methods in design and construction. Performance standards might specify, for example, a certain level of water or energy use be predicted by calculation, or require a percentage of construction waste to be recycled. Prescriptive standards might require native plants to reduce water use for landscaping, recycled content materials, particular construction techniques to minimize waste.

Performance standards generally achieve desired outcomes, allow more flexibility for design and construction teams, encourage innovation by not mandating how-to

techniques, and are easily adapted to project variables (use, scale, location, etc.). Performance standards can be more challenging to administer and more challenging for the design team as they require the designers to figure out the solutions. And not all outcomes can be easily measured, so performance standards are not viable in relation to some environmental factors.

On the other hand, prescriptive standards, by describing what must be done rather than what must be achieved, are easier to administer, easier to implement by the design team, and eliminate the need to develop outcome measures. But they do not always lead to the desired outcome and, as would be expected, do not generally encourage innovation nor allow as much flexibility in design/construction as performance standards.

By using existing rating systems, the Saint Paul Policy will be based on a mix of performance and prescriptive standards depending on each system's approach. The Saint Paul Overlay has six performance requirements and one prescriptive standard, this latter addressing indoor environmental quality where quantitative measures have not been fully developed.

Third-party certification vs. self-regulated enforcement

Oversight of projects to ensure that they incorporate required green features in the design and actual construction is crucial to the integrity of the Sustainable Building Policy. Because of the cost to the developer, many communities with mandatory policies do not require official third-party certification even if the chosen rating system does require such. But the market is placing a higher and higher value on third-party certifications and most developers, certainly those of large projects, see the cost of third-party certification as a marketing investment. A self-certifying rating system are an option for those who do not wish to incur the added expense of third-party certification.

If third party certification is not required, the architect, contractor and/or developer are usually required to submit an affidavit of compliance to the municipality. Some communities randomly audit projects when self-certification systems are used, or audit every fifth or seventh project. Others rely totally on self-regulation.

The recommendation for Saint Paul is for each project's compliance with the Sustainable Building Policy to be verified, in accordance with the verification method specified by the developer-selected rating system, whether third-party or self-certification.

Remediating non-compliance

Regardless of the method for validating compliance, there must be a means of remediation in the event of non-compliance. Various methods are used around the country including withholding of final occupancy certificates until projects comply; requiring offsetting green practices in operation and maintenance, monetary penalties and performance bonds.

It is not feasible to try to modify a completed building with green features if those designed into the building were not actually implemented. So withholding the certificate of occupancy until a project is remediated is impractical.

Withholding some portion of the City's funding of a project as a monetary penalty in the event of non-compliance is likewise not feasible as that money would likely have been spent earlier in the project's life. Generally, public money is dispensed at the front end of a project.

Requiring the developer to purchase a performance bond against Policy compliance sounds feasible on the surface but financial institutions would be hard pressed to price such an instrument.

The Saint Paul Policy assumes good faith effort on the part of a participating developer. Non-compliant projects will be referred to the Sustainable Building Technical Committee, which will consider remedial action, and make recommendations to the HRA Executive Director or his/her designee; for action.

In-house staffing vs. outsourcing

The Environmental Law Institute reports municipalities using "a variety of approaches to staffing, including: (1) changing the job responsibilities of existing staff, (2) hiring new staff, (3) using staff from the city's pre-existing green building program, (4) hiring green building consultants to supplement agency staff, and (5) requiring project applicants to hire their own green building professionals."* Some cities offer financial incentives for staff to become accredited by third party rating systems.

A combination of internal and external resources will be required for implementation of Saint Paul's Policy. Staff training to acquire the necessary expertise is already in process in both PED and DSI. City Sustainability Facilitators will shepherd each project through the city's development process to ensure that all aspects of the Policy are addressed. A combination of city staff, specialists from non-profit organizations such as the Design Center and private consultants will provide assistance with specific design and construction issues. Over time, with the increasing demand for green buildings, architects and builders will all become knowledgeable about these issues and more and more city staff will be trained.

* Environmental Law Institute, op. cit., p. viii.

THE RECOMMENDED SUSTAINABLE BUILDING POLICY

Applicability

For Saint Paul, the recommended policy indicates that any new construction project receiving more than $200,000 in City funding, from any combination of loans, grants, land writedown or other funding vehicles, at or after the time of closing, be required to comply with the Sustainable Building Policy. The term "project" includes parking structures and parking lots and any addition to an existing building that includes a new heating/ventilation/air conditioning (HVAC) system.

While both the Advisory and Core groups discussed applicability to new buildings not receiving public funding and to rehab/renovation projects, as well as to the operation of existing buildings, the recommended Policy is to first apply only to new development with public investment, with potential expansion to other categories after two years.

City funding is defined as money that comes from the following sources: Community Development Block Grant (CDBG), Tax Increment Financing (TIF), HOME Investment Partnership Program (HOME), Multi-Family Housing Revenue Bonds, federal Low Income Housing Tax Credits (LIHTC), other federal, state, and Metropolitan Council funding programs, Housing and Redevelopment Authority (HRA) funds, HRA land writedown (to be valued at market rate), and any other City of Saint Paul funds (including STAR).

Saint Paul Port Authority projects are already required to comply with that agency's own Green Design Policy Review. If they receive more than $200,000 in City funding from one of the above sources, they will also have to comply with the performance requirements of the Saint Paul Overlay.

Because of Saint Paul's age, most of the land is already covered with built structures. Renovation/rehabilitation of buildings for either same or converted use are more common projects than new construction. The complexity of this type of project makes the rating systems more complicated to apply. Yet, some of the largest and most important projects in the City over the next three years are likely to fall in this category. It is anticipated that renovation and rehabilitation projects will be covered by a sustainable development policy in the future.

Assistance to Developers

With the introduction of new steps in the City's development process, PED will offer developers, whether participating as a requirement or voluntarily, the services of a Sustainability Facilitator to help guide each project through the development process, helping ensure adherence to the sustainability requirements. The Facilitator will:

- review the sustainability requirements with the developer;
- explain the offered design assistance and energy modeling;
- assist them in making a choice among the eligible rating systems;
- participate in concept, site and code plan review meetings;
- review, with support from DSI, their plans against the Saint Paul Overlay requirements; and
- coordinate appropriate signage for project site.

Assistance from the Facilitator should make the process run smoothly from the onset and provide an early warning system of any problems with the application of the Policy.

At the developer's request, the City will also help identify sustainable design experts with in-depth experience on specific issues, whether site, building or operational. Depending on the issue, these services could come from:

- qualified staff from the City and other public entities;
- qualified public or non-profit organizations such as the Saint Paul on the Mississippi Design Center, Capitol Region Watershed District, Ramsey-Washington Metro Watershed District, Great River Greening; or
- qualified design professionals in the private sector.

Additionally, the City will, as necessary, act as a liaison between the developer and Xcel Energy, District Energy and/or qualified organizations to secure energy modeling and other analysis for participating projects. This type of modeling is of great help in optimizing the energy performance of the design, which is a component of the Saint Paul Overlay. Xcel currently offers modeling for new construction and/or renovations of buildings greater than 20,000 square feet through their Energy Design Assistance program. Saint Paul will seek its extension to all buildings that comply with the Sustainable Building Policy.

Finally, to ensure that developers get the credit they deserve for building in a sustainable fashion, the City will develop signage and labeling for compliant buildings both during and post-construction.

Requirements: Rating Systems

Saint Paul's Sustainable Building Policy will offer developers seven rating systems, with the level of achievement indicated below, from which to choose:

Commercial Projects:

- LEED New Construction (NC) 2.2, Silver or
- Green Globes, 2 globes or
- Minnesota Sustainable Building Guidelines/B3 Compliant or
- Saint Paul Port Authority Green Design Review (as applicable)

Residential Projects:

- LEED for Homes (H) or LEED NC*, Silver or
- Minnesota GreenStar, Silver or
- Green Communities, Minnesota Overlay Compliant

Perhaps the best known rating system is **Leadership in Energy and Environmental Design (LEED)** developed in 2000 by the U.S. Green Building Council. Widely used throughout the country, LEED has become increasingly sophisticated with subsystems for new construction, homes, existing buildings, and neighborhoods currently in use and others in development. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. The LEED system requires third-party verification of achievement at the end of construction. Within the LEED system, a project can be simply certified or can achieve a Silver, Gold, or Platinum level, each denoting a greater incorporation of green technologies. Achieving LEED Silver level is one of two systems required by the City of Saint Paul on its own new buildings. (The other is the Minnesota Sustainable Building Guidelines.)

Green Globes is a rating system originally developed in Canada in 1996 for use with existing commercial buildings. Now also used in the US through the Green Building Initiative, Green Globes has expanded to include new commercial construction and significant renovations as well as management and operation of existing buildings. It delivers an online assessment protocol, rating system and guidance, making for ease of use. Third party verification of compliance is similar to LEED's with a project able to earn one to four globes.

One concern about national rating systems such as LEED and Green Globes is their indifference to variations in climatic conditions and other environmental factors throughout the country. In an effort to maintain regional values, priorities and requirements, the State of Minnesota adopted the **Minnesota Sustainable Building Guidelines**, known as **B3** (Buildings, Benchmarks and Beyond), which apply to all projects receiving state bond money since 2004. The intent is for the guidelines to lead eventually to a full accounting of the actual human, community, environmental, and life-cycle economic costs and benefits of sustainable building design. Rather than requiring third-party verification, B3 requires documentation to be submitted by the builder to the agency receiving the bond funds and to the Center for Sustainable Building Research at the University of Minnesota, which helped develop the B3 guidelines. Complying with

* For large multi-family residential projects, LEED for New Construction is the standard rather than LEED for Homes.

the Minnesota Sustainable Building Guidelines is one of two systems required by Saint Paul on its own new buildings and those that undergo major renovation. (The other is achieving LEED Silver.)

All projects built on Saint Paul Port Authority land must follow the Port Authority's own **Green Building Design Review** policy. It has links to LEED and the State B3 Guidelines and also includes carbon footprint benchmarking. Certification of compliance is similar to other building rating systems. The Green Building Design Review policy will be available for Port Authority projects only.

Minnesota GreenStar, developed by Minnesota's residential building and remodeling industry, is a rating system designed specifically for the residential sector. It is managed by a non-profit organization with governance by the residential building industry and others. The rating system is supported by a mandatory education program for architects, designers, builders and remodelers, as well as general education for homeowners, lenders, real estate agents, and public officials. Third-party verification is fundamental to this rating system with homes able to receive a bronze, silver or gold level of achievement.

Green Communities is the first national green building program developed for affordable housing. **Minnesota Green Communities** is a collaboration of the Greater Minnesota Housing Fund, the Family Housing Fund, and Enterprise, the national non-profit that created the Green Communities rating system. The system focuses on the use of environmentally sustainable and healthy materials, reduction of negative environmental impacts and increased energy efficiency. The Minnesota Housing Finance Agency (MHFA) has a mandatory requirement that new affordable housing projects with MHFA funding meet a Minnesota Overlay to the Green Communities criteria, which tailor it to specific environmental issues in Minnesota. Under this system, the architect, contractor and/or developer are required to certify in writing, at three stages of the development process, their intention to comply and actual compliance with all the mandatory criteria.

LEED for Homes is another rating system offered by USGBC. Meant for single- and multi-family homes, it operates like LEED NC with a mix of mandatory and voluntary points and four levels of attainment. For large multi-family projects, LEED NC is the appropriate system. LEED homes are certified by LEED for Homes Providers – local organizations with demonstrated experience and expertise in their region's market.

Requirements: The Saint Paul Overlay

Just as Minnesota has sought to inject statewide priorities, values and concerns into the Minnesota Sustainable Building Guidelines (B3) and added a Minnesota Overlay to the Green Communities system, so Saint Paul's Policy includes some prerequisite conditions, regardless of which rating system is chosen by the developer. These mandatory requirements are called the Saint Paul Overlay.

Seven environmental factors and one process step comprise the mandatory Saint Paul Overlay. All but one of the factors is addressed with performance goals, as performance is, after all, the crux of the matter. The method of achieving these goals is up to the architect and contractor; prescriptive standards are only a part of the indoor environmental quality categories where performance is not yet easily measured. In each of these mandatory categories, performance above the required goal would certainly be encouraged; but lesser performance would be considered non-compliance.

Where the performance is related to a code or legislative standard (e.g. with energy and potable water) the requirement will be revised when/if these standards change in the future.

The Saint Paul Overlay requires that*:

1) Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocoal of SB 2030.
2) Predicted use of potable water in the building must be at least 30% below EPA Policy Act of 1992; and
3) Predicted water use for landscaping must be at least 50% less than a traditionally irrigated site using typical water consumption for underground irrigation system standards; and
4) Actual solid waste of construction materials, excluding demolition waste, must be at least 75% recycled or otherwise diverted from landfills; and
5) Indoor Environmental Quality must be addressed through the following strategies:
    - ventilation based on ASHRAE 62.1-2004 or (Meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007)
    - construction IAQ management plan
    - low-emitting materials
    - thermal comfort; and
6) Storm Water Management Requirements:
    - Site Eligibility: Sites with ¼ acre or more of total land disturbance
    - Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed
    - Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP), by implementing Best Management Practices (BMPs) outlined in "Urban Small Sites Best Management Practices" handbook (Metropolitan Council), "Protecting Water Quality in Urban Areas" handbook (Minnesota Pollution Control Agency), the "Minnesota Storm water Manual" (Minnesota Pollution Control Agency). All BMP treatment systems for subject site need to include safety factors, maintenance, and

* See Appendix D for an explanation of how compliance is satisfied under each rating system.

a back-up plan in case of failure. All manufactured devices require independent laboratory testing to confirm product claims.
- Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions.
- Operation and maintenance: All practices must have an O and M plan; and

7) Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner; and
8) Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database, by the building owner or by the building's utility service provider(s) with permission of the owner.

Verification of Compliance

Each project's compliance with the Sustainable Building Policy must be verified, in accordance with the verification method specified by the developer-selected rating system. Certification by an independent third party is required by LEED, Green Globes and Minnesota GreenStar.

The Green Communities and B3 rating systems as well as the Saint Paul Port Authority's Green Design Review Process use self-certification. Green Communities requires the architect, contractor and developer to certify in writing, at three stages of the development process, their intention to comply and actual compliance with all the mandatory criteria. With B3, the contractor must provide documentation of compliance to the agency receiving the bond funds and the Center for Sustainable Building Research at the University of Minnesota. The Port Authority requires the developer to certify compliance with the associated covenants before the project is closed.

The Policy will begin with self-regulation for these self-certification systems, moving to some method of auditing only if a problem with compliance becomes evident.

The City will also participate in verifying compliance. Early in the development process, the Sustainability Facilitator will participate in design reviews, helping to ensure that features necessary for complying with the Policy are incorporated. Then, as part of its regular building inspections during the construction process, DSI will verify that the items related to sustainability in the design plans were in fact implemented. A flowchart of the development process with the sustainability steps highlighted is included in Appendix F.

Variances to the Sustainable Building Policy will be considered by a City Sustainable Building Technical Committee. An expected need for a variance would be for programmatic or unusual site conditions; for example, in the stormwater requirement for a downtown site that has no arable land or in the indoor environmental quality requirements for a parking structure.

The City will assume a developer's good faith effort to comply with the Policy. The review of sustainable features throughout the design and construction processes will help ensure compliance. Should actual operation of the building not reflect the predicted compliance, the Sustainable Building Technical Committee will review the situation to consider remedial action and make recommendations to the HRA Executive Director or his/her designee. Upon receiving recommendations from the Sustainable Building Technical Committee, the HRA Executive Director or his/her designee may require remedial action, limited to the amount of funds granted to the developer.

The requirements of the Policy may be waived, in whole or in part, by the HRA Board after consideration of the advantages and disadvantages of a waiver, and upon showing by the developer a compelling public purpose.

Further Policy Recommendations

Although the additional costs for building green, as discussed on pages 9 - 10, are not generally significant, they still may add to the total bottom line costs of a project. Seeking to find ways to help developers with project financing, the City will work to develop incentive programs including bridge loans and possibly ESCO-style* funding programs with Xcel Energy.

To encourage voluntary participation in the Sustainable Building Policy, the assistance provided to projects required to comply with the Policy is being offered to voluntary participants as well. Further, a City study group will explore the feasibility of other measures as incentives for non-required participation.

* A fairly recent financing innovation, energy services contracting, allows businesses to complete a major upgrade of energy-related systems without any up-front investment. Provided by Energy Services Companies (ESCOs), these contracts can guarantee that a project's energy cost savings will be sufficient to cover the project's debt and the ESCO's fee. ESCOs have been common for many years in Europe and more recently in Asia.

NEXT STEPS

Adoption of the Saint Paul Sustainable Building Policy will require City Council and HRA Board approval. A suggested resolution is attached in Appendix F.

Assuming adoption of the Policy, important technical and organizational steps will be required to begin implementation. These include:

- determining the membership and responsibilities of the Sustainable Building Technical Committee and the process for allowing variances to the Policy and possible action for non-compliance;
- designating one or more Sustainability Facilitators within PED and educating them to ensure their familiarity with all of the Policy elements including the rating systems and the Saint Paul Overlay;
- developing a database of sustainable design experts (an ongoing process as new technologies are developed and new providers appear);
- developing procedures within both PED and DSI to incorporate the Policy in the current development process. Work has begun on this step and will be completed in-house;
- educating PED and DSI staff who will be interfacing with the Policy and those required to apply it; and
- creating educational/promotional materials about the Policy for developers and the public.

After two years of implementation, the Policy will need to be reviewed for workability and goal attainment, with adjustments made as necessary. The appropriate level of compliance will also be reviewed with consideration given to whether to increase the overall level of sustainable attainment and/or adjust specific Overlay targets such as energy performance in order to fulfill Saint Paul's commitment to the US Conference of Mayors' Climate Protection Agreement.

Assuming it has been successful, broader applicability will be considered, including application to all new construction projects, major rehab/renovation projects, and the operation of existing buildings in the City. Further application might be staged, particularly if the standard of compliance for buildings with City funds is raised. For example, the early levels of sustainable attainment might be required of newly covered buildings for two years before raising them to a higher standard.

APPENDIX A

ADVISORY GROUP FOR DEVELOPMENT OF SAINT PAUL SUSTAINABLE BUILDING POLICY

A broad and diverse group was sought for the Advisory Group. In addition to the participants listed below, invitations, background and presentation materials were extended to the following groups: Minnesota Center for Environmental Advocacy, Building Association of the Twin Cities, CommonBond Communities, Saint Paul Area Realtors Association, Saint Paul Chamber of Commerce, Welsh Company, Saint Paul Building Trades Council, Metropolitan Council, Neighborhood Energy Consortium, Center for Energy and Environment. While we regret these organizations did not participate in the project, the following representatives who did participate represent the full gamut of the development industry.

Michael Anschel, Principal, Otogawa-Anschel Design-Build, LLC
Cecile Bedor, Director, Saint Paul Planning and Economic Development
Bruce Beese, Director, Saint Paul Public Works
Bob Bierscheid, Director, Division of Parks and Recreation
Kevin Campion, Commercial Lender, Bremer Bank
Julie Causey, Chairman, Western Bank
Merritt Clapp-Smith, Planner, Saint Paul Planning and Economic Development
Vaughn Dierks, Architect, Wold Architects
Margaret Egan, Chief Budget Analyst, Office of the Saint Paul City Council
David Eijadi FAIA, Principal, The Weidt Group
Julie Esch, Business Dev. Mgr., Mortenson Construction
Gerry Flannery, President, Flannery Construction
Jamie Flannery, Flannery Construction
Readus Fletcher, Minority Busines Devel, Saint Paul Planning and Economic Development
Brad Friesz, Stonebridge Construction
Scott Getty, Accounts Manager, Xcel Energy
Tim Griffin, Director, Saint Paul on the Mississippi Design Center
Emily Goodman, Saint Paul Planning and Economic Development
Monte Hilleman, V.P. Pres. Redev., Saint Paul Port Authority
Robert Humphrey, Asst to the Director, Department of Safety and Inspections
Anne Hunt, Deputy Policy Director, Mayor Christopher B. Coleman's Office
Tom Hysell, Business Development Director , Mortenson Construction
Wally Johnson Stonebridge Companies
John Labosky, President and CEO, Capital City Partnership
Yung Kang Lu, St Paul Planning Commissoner
Deboarah Karasov, Director, Great River Greening
Bob Kessler, Director, Department of Safety and Inspections
Fred Koehler, Asset Manager, Meritex Enterprises, and BOMA Board Member
Lorrie Louder, Director, Saint Paul Port Authority

Stephanie McDaniel, BWBR Architects
Matt Anfang, President, The Greater St. Paul Building Owners & Managers Association
Laura Millberg, Green Building Specialist, Minnesota Pollution Control Agency
David Morck, BKV Group
Terry Olsen, Architect, TKDA Engineers, Architects & Planners
Luis Pereira, Planner, Saint Paul Planning and Economic Development
Rick Person, Program Administrator, Saint Paul Department of Public Works
Ken Potts, architect, McGough Companies
Mason Riddle, writer
Tom Riddering, Building Official, Department of Safety and Inspections
Kurt Schultz, Saint Paul Planning and Economic Development
Howell Shaw, Principle, Shaw-Lundquist Associates
Angie Skildum, Family Housing Fund
Larry Soderholm, Saint Paul Planning and Economic Development
Jimmie Sparks, Energy Manager, Neighborhood Energy Connection
Richard Strong, Research Fellow, Center for Sustainable Buiding Research
Alex Young, VP Development, MSP Commerical
Julie Vigness-Pint, District Technician, Ramsey Washington Metro Watershed District
_____ - District Energy St. Paul

CORE WORK GROUP

Emily Goodman, Department of Planning and Economic Development
Tim Griffin, Saint Paul on the Mississippi Design Center
Monte Hillman, Saint Paul Port Authority
Anne Hunt, Mayor's Office
Stephanie McDaniel, BWBR
Laura Millberg, Minnesota Pollution Control Agency
Luis Pereira, Department of Planning and Economic Development
Rick Person, Department of Public Works
Tom Riddering, Department of Safety and Inspections
Kurt Schultz, Department of Planning and Economic Development
Howell Shaw, Shaw Sustainable
Angie Skildum, Family Housing Fund
Matt Anfang – The Greater St. Paul Building Owners & Managers Association

APPENDIX B

CITY POLICIES REVIEWED

(listed in order of policy adoption)

Cities with mandatory policies

Frisco TX
Boulder CO
Marin County CA
Austin TX
Aspen/Pitkin County CO
Pleasanton CA
Arlington County VA
Pasadena CA
Long Beach CA
Santa Cruz CA
Washington DC
Montgomery County MD
Boston MA

Cities with incentives for voluntary participation

Scottsdale AZ
Arlington County VA
Chicago IL
Santa Monica CA
Sarasota FL
Santa Cruz CA
Anaheim CA
King County WA
San Francisco CA
Washington DC

Cities with direct financial incentives

Santa Monica CA
Pasadena CA
Anaheim CA
King County WA
Chatham County GA
Baltimore County MD
Cincinnati OH

APPENDIX C

SUMMARY OF A SURVEY OF GREEN DEVELOPMENT POLICIES FOR THE 30 LARGEST METRO AREAS IN THE US

	Developments required to follow Green Building Policy			
	All City Owned Developments	All city Financed Developments	All Private Commercial Developments	All Private Residential Developments
New York, NY	X	X	>$2 million	
Los Angeles, CA	X	X	>50,000 SF	>50,000 SF
Chicago, IL	X	X	Incentives	Incentives
Washington, DC	X	2008	2009	2012
Boston, MA	X	X	>50,000 SF	>50,000 SF
San Francisco, CA	X		Incentives	Incentives
Philadelphia, PA	X			
Dallas, TX	X	X	>50,000 SF	2011
Houston, TX	X			
Atlanta, GA	X	X		
Miami, FL	X	X	Incentives	Incentives
Detroit, MI	NA	NA	NA	NA
Phoenix, AZ	X			
Seattle, WA	X		Incentives	Incentive
Minneapolis/St Paul	X	X		
Denver, CO	X			
San Diego, CA	X		Incentives	Incentives
Cleveland, OH	X	Incentives	Incentives	Incentives
St. Louis, MS	X			
Tampa-St. Petersburg, FL	X		Incentives	Incentives
Pittsburgh, PA	X		Incentives	Incentives
Sacramento, CA	X			
Charlotte, NC	NA	NA	NA	NA

	Developments required to follow Green Building Policy			
	All City Owned Developments	All city Financed Developments	All Private Commercial Developments	All Private Residential Developments
Portland, OR	X	X	Incentives	Incentives
Cincinnati, OH	X		Incentives	Incentives
Orlando, FL	NA			
Kansas City, MS	X			
Indianapolis, IN	Developing			
Columbus, OH	NA			
San Antonio, TX	X	X	Incentives	Incentives

APPENDIX D

THE SAINT PAUL OVERLAY

This appendix elaborates which points within each rating system are required by the Saint Paul Overlay.

LEED New Construction v. 2.2

1. Energy	Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.	To be determined
2. Indoor Water Use	Predicted water use in building - 30% below 1992 Environmental Policy Act and subsequent revisions and additions.	Both achieve 1 point for LEED WE Credit 3.1 and 1 point for LEED WE Credit 3.2. and Comply with the Saint Paul Standards Supplemental Requirement R.2.2.2: 30% Water Use Reduction in Non-Fixture Water Consuming Devices. or Comply with the Saint Paul Standards Supplemental Requirement R.2.1: Saint Paul Standards Water Use Calculator.
3. Exterior Water Use	Predicted water use for landscaping, 50% reduction of potable or groundwater use from comparable site.	Achieve LEED WE Credit 1.1: Water Efficient Landscaping - Reduce water consumption by 50% from a mid summer calculated base case for 1 point.
4. Construction Waste Reduction	Actual solid waste in construction, 75% recycled or diverted from landfills or incineration.	Achieve 1 point for LEED MR Credit 1.1 for diverting at least 50% of waste from disposal and 1 point for LEED MR Credit 1.2 for at least 75% of waste from disposal; 2 points total.
5. Indoor Environmental Quality	Ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007	To be determined

Indoor Environmental Quality (cont.)	Construction IAQ management plan	Achieve EQ Credit 3.1 and 3.2: Construction IAQ Management Plans, both During Construction and Before Occupancy for 2 points total.
	Low-Emitting Materials	Achieve EQ Credits 4.1, 4.2, 4.3, 4.4: Low-Emitting Materials. If no carpet is installed, criterion 4.3 does not apply. 4 points (3 if no carpet is installed)
	Thermal Comfort	Achieve EQ Credit 7.1: Thermal Comfort for 1 point.
6. Stormwater Management	Storm Water Management must be addressed through the following requirements: ▪ Site Eligibility: Sites with ¼ acre or more of total land disturbance ▪ Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed ▪ Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP). ▪ Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions. ▪ Operation and maintenance: All practices must have an O and M plan.	The LEED New Construction v. 2.2 criteria does not have a section that imparts comprehensive compliance with all potions of the Saint Paul Standard; comply instead with the Saint Paul Standard Supplemental Requirement R.6.
7. Greenhouse Gas Emissions	Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner.	Methods of meeting this standard are on the website: www.mn2030.umn.edu/
8. Energy Use Reporting	Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database by the building owner or by the building's utility service provider(s) with permission of the owner.	Satisfy the Saint Paul Standard Supplemental Requirement R.8: Actual Energy Data Reporting.

Green Globes: Proposed Draft

1. Energy	Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.	To be determined.
2. Indoor Water Use	Predicted water use in building - 30% below 1992 Environmental Policy Act and subsequent revisions and additions.	Both achieve at least 12 points in section 9.2.1: Plumbing Fixtures and Fittings and Comply with the Saint Paul Standards Supplemental Requirement R.2.2.2: 30% Water Use Reduction in Non-Fixture Water Consuming Devices. or Comply with the Saint Paul Standards Supplemental Requirement R.2.1: Saint Paul Standards Water Use Calculator.
3. Exterior Water Use	Predicted water use for landscaping, 50% reduction of potable or groundwater use from comparable site.	Achieve one of the following paths in section 7.4.1: Site Ecology - Landscape and Irrigation 1,2,3,4, or 7; or achieve 10 points for credit 7.4.1.8.1: Irrigation need elimination.
4. Construction Waste Reduction	Actual solid waste in construction, 75% recycled or diverted from landfills or incineration.	Achieve 6 points for credit 10.5.1 for diverting greater than 75% of construction waste from landfill or incineration.
5. Indoor Environmental Quality	Ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007	To be determined
	Construction IAQ management plan	Achieve 9 points for sections 6.2.4.1 and section 6.2.4.2. In addition, comply with supplemental requirement R.4.2 of the Saint Paul Standards. (Note that the construction air requirements of SMACNA IAQ guide occurs both in Green Globes 6.2.4.2 and the Saint Paul Standards R.4.2, though additional requirements are necessary under the Saint Paul Standards)

Indoor Environmental Quality (cont.)	Low-Emitting Materials	Achieve 8 points for section 12.2.1: Volatile Organic Compounds.
	Thermal Comfort	Achieve 10 points from section 12.5.2.
6. Stormwater Management	Storm Water Management must be addressed through the following requirements: ▪ Site Eligibility: Sites with ¼ acre or more of total land disturbance ▪ Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed ▪ Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP). ▪ Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions. ▪ Operation and maintenance: All practices must have an O and M plan.	The Green Globes criteria does not have a section that imparts comprehensive compliance with all potions of the Saint Paul Standard; comply instead with the Saint Paul Standard Supplemental Requirement R.6.
7. Greenhouse Gas Emissions	Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or the building owner.	Methods of meeting this standard are on the website: www.mn2030.umn.edu/
8. Energy Use Reporting	Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database by the building owner or by the building's utility service provider(s) with permission of the owner.	Satisfy the Saint Paul Standard Supplemental Requirement R.8: Actual Energy Data Reporting.

State of Minnesota Sustainable Building Guidelines

1. Energy	Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.	Achieving required MSBG criteria E.1 imparts compliance with this section of the Saint Paul Standards.
2. Indoor Water Use	Predicted water use in building - 30% below 1992 Environmental Policy Act and subsequent revisions and additions.	Achieving required MSBG criteria S.8 imparts compliance with this section of the Saint Paul Standards.
3. Exterior Water Use	Predicted water use for landscaping, 50% reduction of potable or groundwater use from comparable site.	Achieving required MSBG criteria S.7 – Part A imparts compliance with this section of the Saint Paul Standards.
4. Construction Waste Reduction	Actual solid waste in construction, 75% recycled or diverted from landfills or incineration.	Achieving required MSBG criteria M.3 imparts compliance with this section of the Saint Paul Standards.
5. Indoor Environmental Quality	Ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007.	To be determined
	Construction IAQ management plan	Achieving required MSBG criteria P.4 imparts compliance with this section of the Saint Paul Standards.
	Low-Emitting Materials	Achieving required MSBG criteria I.2 imparts compliance with this section of the Saint Paul Standards.
	Thermal Comfort	Achieving required MSBG criteria I.5 imparts compliance with this section of the Saint Paul Standards.

6. Stormwater Management	Storm Water Management must be addressed through the following requirements: ▪ Site Eligibility: Sites with ¼ acre or more of total land disturbance ▪ Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed ▪ Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP). ▪ Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions. Operation and maintenance: All practices must have an O and M plan.	The State of Minnesota Sustainable criteria does not have a section that imparts comprehensive compliance with all potions of the Saint Paul Standard; comply instead with the Saint Paul Standard Supplemental Requirement R.6.
7. Greenhouse Gas Emissions	Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner.	Methods of meeting this standard are on the website: www.mn2030.umn.edu/
8. Energy Use Reporting	Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database by the building owner or by the building's utility service provider(s) with permission of the owner.	Satisfy the Saint Paul Standard Supplemental Requirement R.8: Actual Energy Data Reporting.

Green Communities Criteria

1. Energy	Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.	To be determined.
2. Indoor Water Use	Predicted water use in building - 30% below 1992 Environmental Policy Act and subsequent revisions and additions.	The Green Communities Criteria do not have a section that accurately imparts compliance with the Saint Paul Standard; comply instead with the Saint Paul Standards Supplemental Requirement R.2: Indoor Water Use Reduction.
3. Exterior Water Use	Predicted water use for landscaping, 50% reduction of potable or groundwater use from comparable site.	Green Communities does not include a comparable irrigation reduction section. Use the Saint Paul Standards Irrigation Calculator to determine the amount of water use reduction, minimum 50%.
4. Construction Waste Reduction	Actual solid waste in construction, 75% recycled or diverted from landfills or incineration.	Minnesota Green Communities does not have a satisfactory waste reduction criterion. Satisfy the Saint Paul Standard Supplemental Requirement R.3.
5. Indoor Environmental Quality	Ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007.	To be determined
	Construction IAQ management plan	Minnesota Green Communities does not have a satisfactory ventilation criterion. Satisfy the Saint Paul Standard Supplemental Requirement R.4.
	Low-Emitting Materials	Achieve required credits 7-1, 7-2, 7-3 and 7-4. Note that these are mandatory criteria.
	Thermal Comfort	There is no applicable GC section that satisfies the conditions of the Saint Paul Standards. Satisfy the Saint Paul Standard Supplemental Requirement R.5.

6. Stormwater Management	Storm Water Management must be addressed through the following requirements: ▪ Site Eligibility: Sites with ¼ acre or more of total land disturbance ▪ Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed ▪ Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP). ▪ Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions. ▪ Operation and maintenance: All practices must have an O and M plan.	The Green Communities criteria does not have a section that imparts comprehensive compliance with all potions of the Saint Paul Standard; comply instead with the Saint Paul Standard Supplemental Requirement R.6.
7. Greenhouse Gas Emissions	Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner.	Methods of meeting this standard are on the website: www.mn2030.umn.edu/
8. Energy Use Reporting	Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database by the building owner or by the building's utility service provider(s) with permission of the owner.	Satisfy the Saint Paul Standard Supplemental Requirement R.8: Actual Energy Data Reporting.

Minnesota GreenStar – New Homes Checklist

1. Energy	Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.	To be determined.
2. Indoor Water Use	Predicted water use in building - 30% below 1992 Environmental Policy Act and subsequent revisions and additions.	Both achieve criteria 7B-4, 7B-6 or 7b-7, 7B-10 or 7B-12, 7B-14 or 7B-15 or 7B-17 for shower heads, toilet and faucets. and Comply with the Saint Paul Standards Supplemental Requirement R.2.2.2: 30% Water Use Reduction in Non-Fixture Water Consuming Devices. or Comply with the Saint Paul Standards Supplemental Requirement R.2.1: Saint Paul Standards Water Use Calculator.
3. Exterior Water Use	Predicted water use for landscaping, 50% reduction of potable or groundwater use from comparable site.	Achieve 7 points for credit 3C-2: Landscape System that requires no municipally-supplied well water for irrigation (food gardens exempt) (certified by a registered professional), or Use the Saint Paul Standards Irrigation Calculator to determine the amount of water use reduction, minimum 50%. This may be compatible with points awarded for credits 3C-3, 3C-4, 3C-6, 3C-7, 3C-8 and 3C-9.
4. Construction Waste Reduction	Actual solid waste in construction, 75% recycled or diverted from landfills or incineration.	There are many smaller point numbers possible using Minnesota GreenStar; however, it is necessary to satisfy the Saint Paul Standard Supplemental Requirement R.3.
5. Indoor Environmental Quality	Ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007.	To be determined

Indoor Environmental Quality (cont.)	Construction IAQ management plan	Satisfy OPR-4: Mechanical ventilation of home for 48 hours after project completion and prior to occupancy and achieve 3 points for section 8F-1: Supply workers with VOC protection.
	Low-Emitting Materials	At a minimum, achieve credits in the following categories: (more stringent requirements can also be used, sections required if product category is included in project) 8A-3c, 8A-3f, 8A-6d, 8B-5, 8B-9d, 8C-2d, 8C-5d, 8D-2d, 8E-2 (for no-added urea formaldehyde) 8E-3, 8F-2, 8F-3.
	Thermal Comfort	Achieve Section 5A-PR1: Design and install a whole-house ventilation system in accordance with Section N1104 Mechanical Ventilation Systems of the (2007 working draft at the time of this writing) Minnesota Residential Energy Code.
6. Stormwater Management	Storm Water Management must be addressed through the following requirements: ▪ Site Eligibility: Sites with ¼ acre or more of total land disturbance ▪ Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed ▪ Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP). ▪ Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions. ▪ Operation and maintenance: All practices must have an O and M plan.	The Minnesota GreenStar criteria does not have a section that imparts comprehensive compliance with all potions of the Saint Paul Standard; comply instead with the Saint Paul Standard Supplemental Requirement R.6.

7. Greenhouse Gas Emissions	Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner.	Methods of meeting this standard are on the website: www.mn2030.umn.edu/
8. Energy Use Reporting	Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database by the building owner or by the building's utility service provider(s) with permission of the owner.	Satisfy the Saint Paul Standard Supplemental Requirement R.8: Actual Energy Data Reporting.

LEED for Homes

1. Energy	Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.	To be determined.
2. Indoor Water Use	Predicted water use in building - 30% below 1992 Environmental Policy Act and subsequent revisions and additions.	Both achieve LEED for Homes WE Credit 3.2: Very high efficiency fixtures for 6 points. and Comply with the Saint Paul Standards Supplemental Requirement R.2.2.2: 30% Water Use Reduction in Non-Fixture Water Consuming Devices. or Comply with the Saint Paul Standards Supplemental Requirement R.2.1: Saint Paul Standards Water Use Calculator.
3. Exterior Water Use	Predicted water use for landscaping, 50% reduction of potable or groundwater use from comparable site.	Achieve 6 points through LEED SS Credit 2.5: Reduce Overall Irrigation Demand by at Least 20% (6 points is awarded for a reduction in demand for at least 45%) and at least two points for WE Credit 2.3: Reduce Irrigation Demand by at Least 45%. These credit categories combine to give 8 points for this water reduction strategy.
4. Construction Waste Reduction	Actual solid waste in construction, 75% recycled or diverted from landfills or incineration.	Achieve 2.5 points for MR Credit 3: Waste Management for at least 75% waste diversion from landfills and incinerators.
5. Indoor Environmental Quality	Ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007.	To be determined

Indoor Environmental Quality (cont.)	Construction IAQ management plan	Achieve at least 1 point each for the following credits: EQ credit 8.1: Indoor contaminant control during Construction, EQ credit 8.2: Indoor Contaminant Control, and 8.3 Preoccupancy Flush. If satisfying EQ credit 1, credit 8.1 is not necessary.
	Low-Emitting Materials	Achieve all possible points in section MR 2.2 by achieving low-emissions standards for Environmentally Preferable Products. Achieve these points by ensuring that only low-emission products are used for paints, coatings, adhesives and sealants, carpet and composite wood and agrifiber products.
	Thermal Comfort	Achieve at least 1 point for EQ 6: Distribution of Space Heating and Cooling.
6. Stormwater Management	Storm Water Management must be addressed through the following requirements: ▪ Site Eligibility: Sites with ¼ acre or more of total land disturbance ▪ Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed ▪ Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP). ▪ Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions. ▪ Operation and maintenance: All practices must have an O and M plan.	The LEED for Homes criteria does not have a section that imparts comprehensive compliance with all potions of the Saint Paul Standard; comply instead with the Saint Paul Standard Supplemental Requirement R.6.

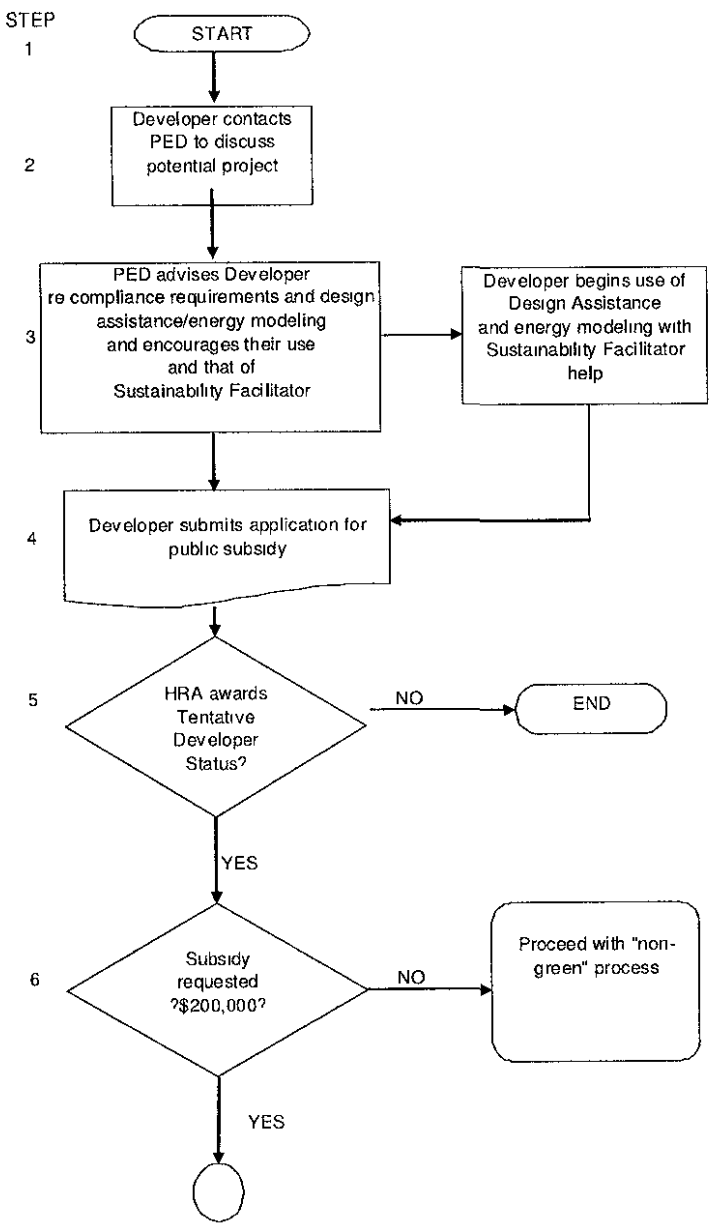
7. Greenhouse Gas Emissions	Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner.	Methods of meeting this standard are on the website: www.mn2030.umn.edu/
8. Energy Use Reporting	Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database by the building owner or by the building's utility service provider(s) with permission of the owner.	Satisfy the Saint Paul Standard Supplemental Requirement R.8: Actual Energy Data Reporting.

APPENDIX E

A GENERALIZED REPRESENTATION OF SAINT PAUL'S DEVELOPMENT PROCESS WITH EMPHASIS ON STEPS RELATED TO SUSTAINABILITY

☐ Notes steps specifically related to Sustainable Building Policy

Note: this process may not be in definitive order and may not fully represent each step.



Step 3.

All new construction projects receiving $200,000 or more in city money,* at or after time of closing, (including parking structures, parking lots and additions with new HVAC systems) **are required to be certifiable under one of the following rating systems.**

a)LEED NC or H, Silver OR
b) Green Globes, 2 globes OR
c) B3 compliant OR
d) Saint Paul Port Authority Green Design compliant
e) Green Star, Silver OR
f) Green Communities compliant

Developers falling under the Green Requirement will be offered, without charge:

a) Sustainability Facilitator from the city to shepherd the project through the development process, helping ensure adherence to the sutainability requirements.
b) Access to early sustainable design assistance through
   1) City staff
   2) Non Profit Organizations, e.g. The Saint Paul on the Mississippi Design Center
   3) Private consultants
c) Promotional labeling/signage for their site during and post-construction
d) subsidized energy modeling by Xcel Energy for buildings in this program

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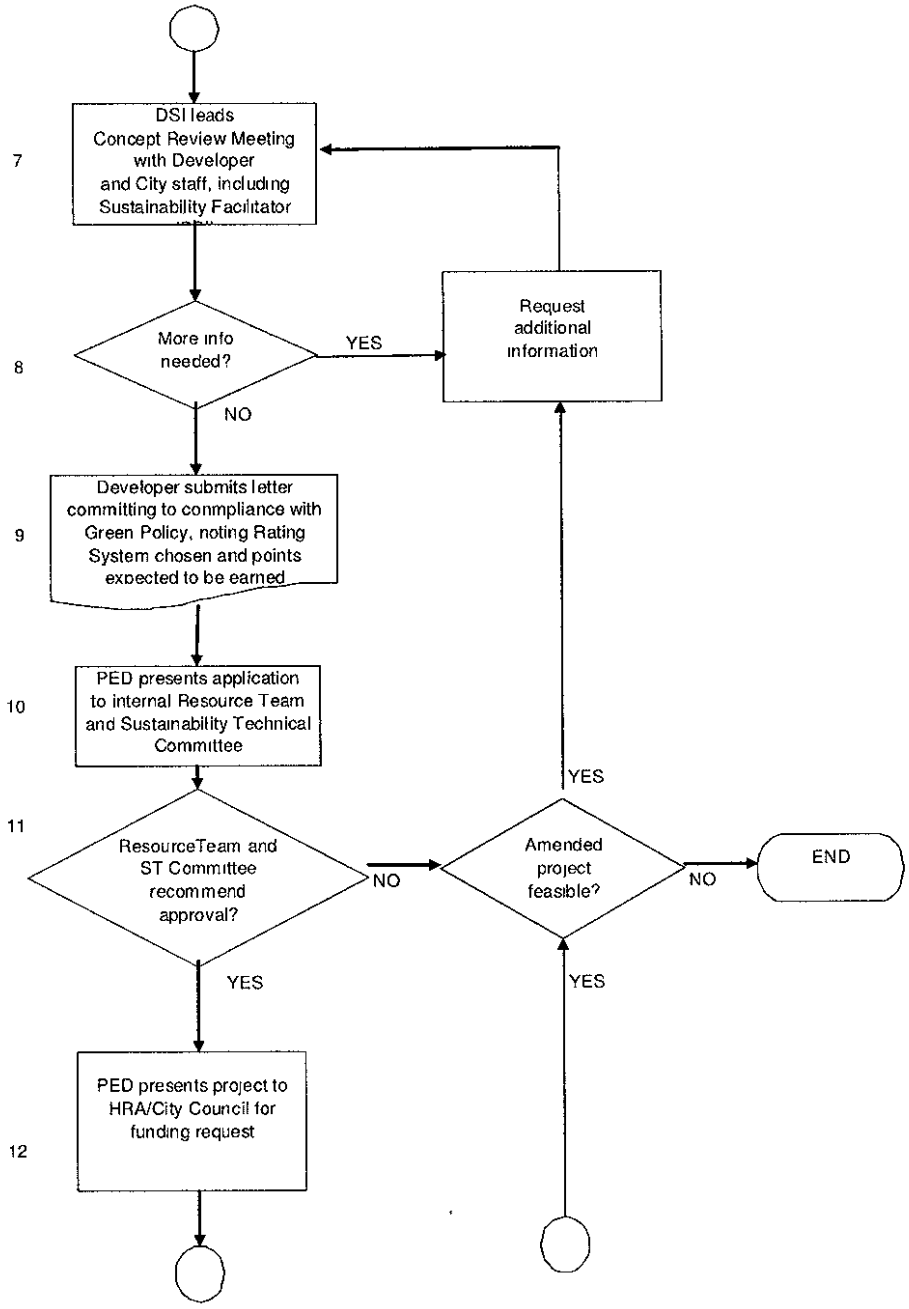

Step 7.
At Concept Review Meeting the developer will indicate the chosen rating systen points to be earned will be discussed; and the concept plan reviewed vis a vis th overall Sustainability Policy

Step 9.
Within the chosen rating system, a project must meet specific requirements of:
a) energy use, at least 30% below current MN Energy Code/ASHRAE (1989)
b) water use in building, at least 30% below EPA Policy Act 1992
c) water use for landscaping, at least 50% reduction from comparable site
d) solid waste in construction, at least 75% recycled or otherwise diverted from landfi
e) indoor air qualitymust be addressed through the following strategies
- § increased ventilation
- § construction IAQ management plan
- § low emitting materials
- § thermal comfort

f) stormwater volume control for 1" events or greatei
g) greenhouse gas emissions must equal or be less than MN 2030 benchmark
h) actual energy data must be entered into the State's B3 benchmarking database
[NOTE: these requirements will be adjusted if/when the underlying reference standarc changes.

Step 10.
The Sustainability Technical Committee will be jointly created by PED and DSI

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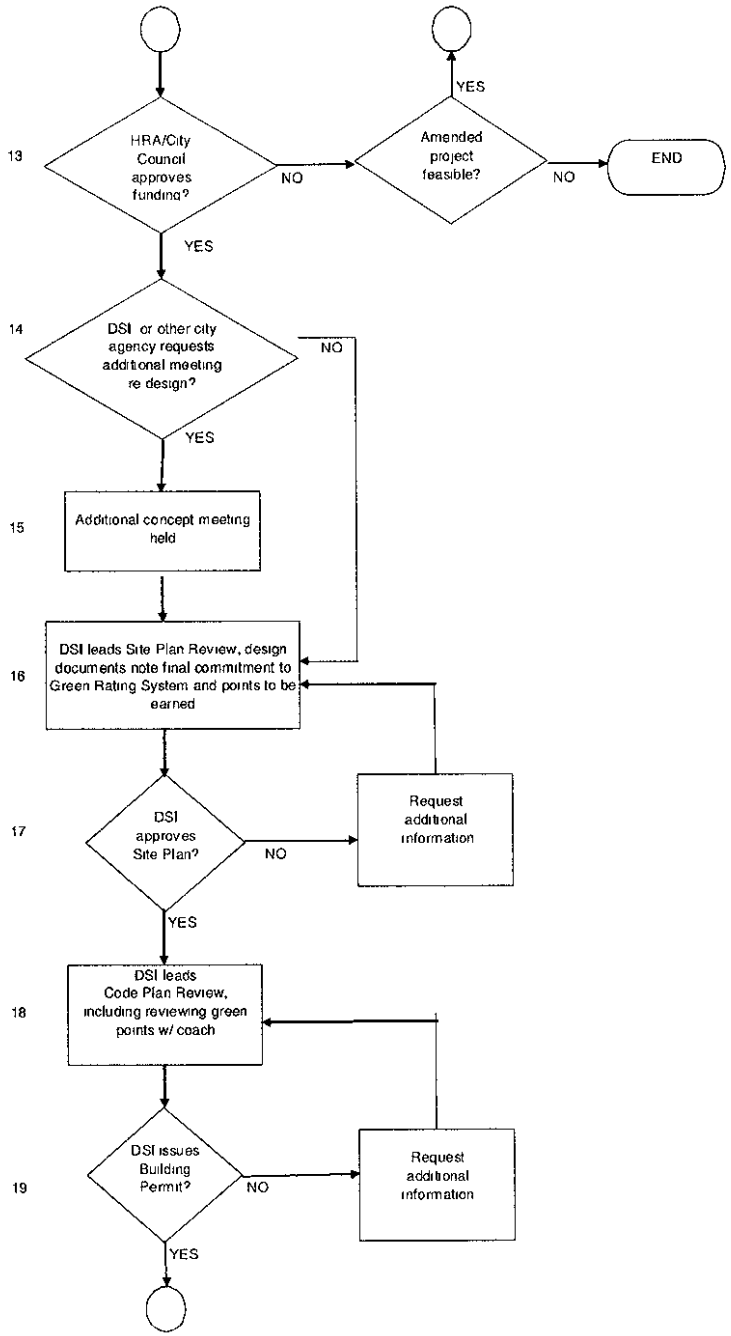

Step 14.
Any city agency with concerns about the Project can request that DSI convene another meeting regarding the design before the Site Review Plan is presented.

Step 16.
Compliance with the Policy will be verified in accordance with the verification method specified in the developer-selected rating system.

Step 18.
Detailed plan review including ensuring that the points from Step 16 are includ in the detailed plan.

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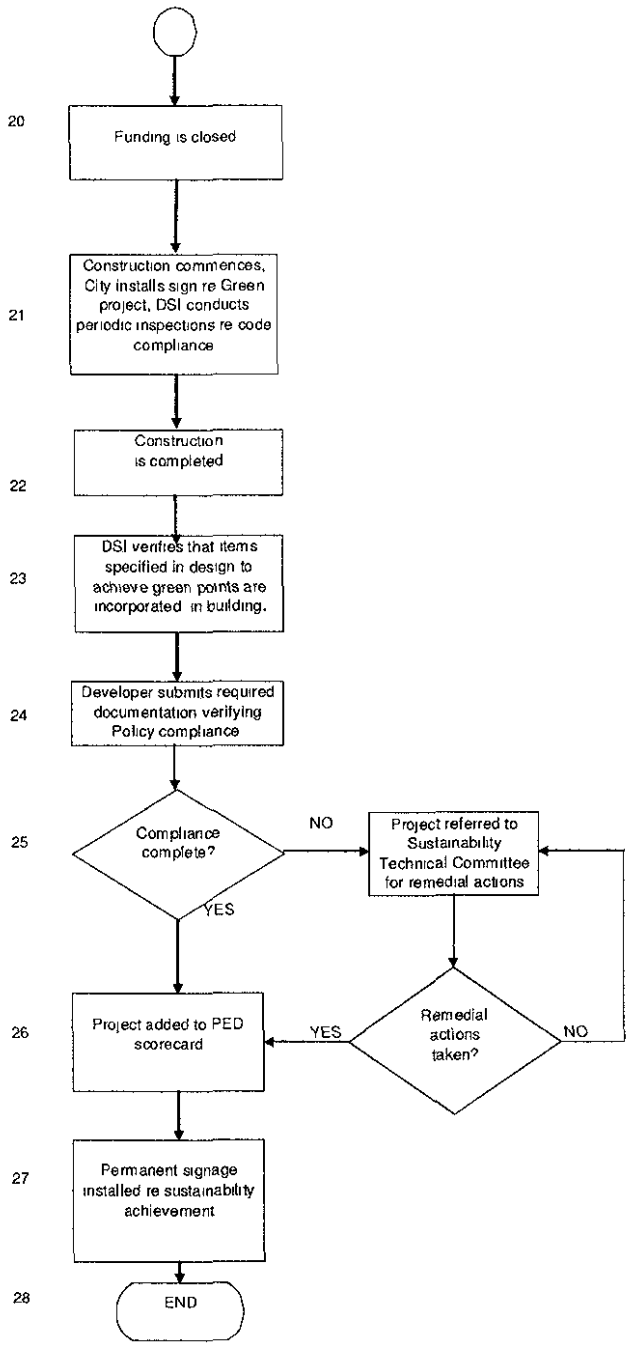

Step 23.
As part of its regular building inspections. DSI verifies that the design is proper constructed.

Step 24.
Each project's compliance with the Sustainable Building Policy must be verified in accordance with the verification method specified by the developer-selected rating system.

Step 25.
In considering remediation measures, the Committee will assume the developer' faith efforts

*** City money is defined as money that come from the following sources: Commu Block Grant (CDBG), Tax Increment Financing (TIP), HOME Investment Part (HOME), Revenue Bonds, HRA Funds, HRA land writedown (to be valued at n rate), and any other City of St Paul dollars, including STAR.**

09-1377

APPENDIX F

RESOLUTION TO IMPLEMENT SAINT PAUL SUSTAINABLE BUILDING POLICY

WHEREAS, Saint Paul wants to be the most livable city in the United States; and

WHEREAS, livability includes ensuring healthy communities and healthy lives for Saint Paul citizens; and

WHEREAS, by signing the US Conference of Mayors Climate Protection Agreement, Mayor Coleman has specifically committed Saint Paul to reducing greenhouse gas emissions to seven percent below 1990 levels by 2012; and

WHEREAS, carbon dioxide (CO_2) emissions, resulting from human activity, are a significant contributor to the greenhouse effect that is causing global climate change and buildings account for nearly 40% of U.S. CO_2 emissions; and

WHEREAS, construction and demolition waste account for nearly a third of the solid waste generated in the Twin Cities metropolitan area; and

WHEREAS, taking proactive steps with regard to built structures will help protect our City's air, water and urban landscape by focusing on carbon dioxide reduction, energy efficiency and conservation, clean energy supply, alternative transportation, water quality, recycling, waste reduction, green space and reforestation; and

WHEREAS, since 2007, Saint Paul has had a policy (Council File 07-70) to seek and receive Leadership in Energy and Environmental Design (LEED) Silver certification or utilize the State of Minnesota Sustainable Building Guidelines (State Guidelines) in the planning, design, construction, commissioning, and major renovation of municipal facilities financed by the City of Saint Paul and utilized by the City's Executive Departments, the Saint Paul Public Library and the City of Saint Paul Division of Parks and Recreation; and

WHEREAS, when a City building is constructed or renovated to LEED standards, the State Guidelines related to "Energy and Atmosphere," including exceeding the energy code by at least 30%, must also be met and the State Guidelines related to Performance Management requirements must be adhered to; and

WHEREAS, the Interim Saint Paul PED / HRA Sustainable Development Initiative requires developers seeking City or HRA funds to take advantage of City authorized design and assistance programs, including but not limited to Xcel Energy's Energy Design Assistance Program or the ENERGY STAR program for homes ; and

WHEREAS, rating systems that assign points to various "green" achievements have become an accepted way to evaluate a building's sustainable attributes, and

WHEREAS, such rating systems do not always reflect local priorities, values, and concerns, and
WHEREAS, the Mayor's Advisory Committee on Green Policy Development has recommended that the City adopt a Sustainable Building Policy,

NOW, THEREFORE BE IT RESOLVED, that the City of Saint Paul and the Housing and Redevelopment Authority (HRA) adopt a Sustainable Building Policy (Policy) with which any new construction project receiving more than $200,000 in City and/or HRA funding, is required to comply; and be it

FURTHER RESOLVED, that City and/or HRA funding is defined as money originating from Community Development Block Grant (CDBG), Tax Increment Financing (TIF), HOME Investment Partnership Program (HOME), Multi-Family Housing Revenue Bonds, federal Low Income Housing Tax Credits (LIHTC), other federal, state, and Metropolitan Council funding programs, HRA funds, any City of Saint Paul funds, including STAR, from any combination of loans, grants, land writedown or other funding vehicles; and be it

FURTHER RESOLVED, that the Policy does apply to parking structures and parking lots and any addition to an existing building that includes a new heating/ventilation/air conditioning (HVAC) system; and be it

FURTHER RESOLVED, that the Policy does not otherwise apply to existing structures; and be it

FURTHER RESOLVED, that the Department of Planning and Economic Development (PED) and the Department of Safety and Inspections (DSI) will jointly create a Sustainable Building Technical Committee (Committee) that will oversee implementation of the Policy and consider requests for variances; and be it

FURTHER RESOLVED, that a private sector representative will serve on the Committee and a Developer's representative will be invited to Committee meetings when a project of that Developer is being reviewed; and be it

FURTHER RESOLVED, that to assist the Developer comply with the Policy, whether the Developer is required to comply, or is doing so voluntarily, the City will:

1. provide, at no additional cost to the Developer, a Sustainability Facilitator within PED to help guide each project through the development process, ensuring adherence to the Policy, and
2. at the Developer's request, help identify sustainable design experts with in-depth experience on specific issues, whether site, building, or operational, and
3. work with Xcel Energy to provide, at no cost to the Developer, energy modeling in the design stage for all participating projects meeting Xcel Energy's requirements, and

4. work with District Energy to assist with energy modeling and other analysis and assistance during the design stage for all participating projects meeting District Energy's requirements, and
5. at the Developer's request, help locate building commissioning agents to verify performance against design requirements, and
6. negotiate, as part of a Development Agreement, signage and labeling for compliant buildings both during and post-construction; and be it

FURTHER RESOLVED, that the Developer must choose for the project one of the following rating systems and levels with which to minimally comply:

Commercial Projects:
- LEED New Construction (NC) 2.2, Silver or
- Green Globes, 2 globes or
- State Guidelines Building Benchmarking and Beyond (B3) Compliant or
- Saint Paul Port Authority Green Design Review (as applicable)

Residential Projects:
- LEED for Homes (H) or LEED NC*, Silver or
- Minnesota GreenStar, Silver or
- Green Communities, Minnesota Overlay Compliant; and be it

FURTHER RESOLVED, that the following mandatory requirements, to be known as the Saint Paul Overlay, must be met within the Developer's chosen rating system:

1. Predicted energy use shall meet Minnesota Sustainable Building 2030 (SB 2030) "Energy Standards" for new buildings. The conditions for meeting the "Energy Standards" are subject to the "Cost Effectiveness" Protocol of SB 2030.
2. Predicted use of potable water in the building must be at least 30% below EPA Policy Act of 1990.
3. Predicted water use for landscaping must be at least 50% less than a traditionally irrigated site using typical water consumption for underground irrigation systems standards.
4. Actual solid waste of construction materials, excluding demolition waste, must be at least 75% recycled or otherwise diverted from landfills.
5. Indoor Environmental Quality must be addressed through the following strategies:
    a. ventilation based on ASHRAE 62.1-2004 or meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007
    b. construction IAQ management plan
    c. low-emitting materials
    d. thermal comfort
6. Storm Water Management Requirements:
    a. Site Eligibility: Sites with ¼ acre or more of total land disturbance
    b. Rate Control: 1.64 cubic feet per second (cfs) /acres disturbed

* For large multi-family residential projects, LEED for New Construction is the standard rather than LEED for Homes.

c. Water Quality Management: For a 2 year, 24-hour rainfall event, provide treatment systems designed to remove 80% of the average annual post development Total Suspended Solids (TSS) and remove 60% of the average annual post development Total Phosphorus (TP), by implementing Best Management Practices (BMPs) outlined in "Urban Small Sites Best Management Practices" handbook (Metropolitan Council), "Protecting Water Quality in Urban Areas" handbook (Minnesota Pollution Control Agency), the "Minnesota Storm water Manual" (Minnesota Pollution Control Agency). All BMP treatment systems for subject site need to include safety factors, maintenance, and a back-up plan in case of failure. All manufactured devices require independent laboratory testing to confirm product claims.
d. Volume Control/ Infiltration: Maintain or increase infiltration rates from pre-project site conditions.
e. Operation and maintenance: All practices must have an O and M plan.

7. Predicted greenhouse gas emissions must be reported to the Minnesota Sustainable Building 2030 database by the design team or building owner.
8. Annually, actual energy data for the project must be submitted to the Minnesota Sustainable Building 2030 database, by the building owner or by the building's utility service provider(s) with permission of the owner; and be it

FURTHER RESOLVED, that each project's compliance with the Green Building Policy must be verified, in accordance with the verification method specified by the Developer-selected rating system; and be it

FURTHER RESOLVED, that in the event of notification of non-compliance, and reasonable opportunity to cure, the City will refer the project to the Sustainable Building Technical Committee, which will consider remedial action, and make recommendations to the HRA Executive Director or his/her designee; and be it

FURTHER RESOLVED, that upon a recommendation from the Sustainable Building Technical Committee, the HRA Executive Director or his/her designee may require remedial action, limited to the amount of funds granted to the Developer; and be it

FURTHER RESOLVED, that the requirements of the Policy may be waived, in whole or in part, by the HRA Board after consideration of the advantages and disadvantages of a waiver, and upon showing by the Developer a compelling public purpose; and be it

FURTHER RESOLVED, that the Policy will apply to projects for which schematic design is initiated after July 1, 2010; and be it

FINALLY RESOLVED, modification or expansion of the Policy requires assembly of a Sustainable Building Policy Committee, analysis by the Sustainable Building Technical Committee, and a City Council public hearing prior to enactment.

Item 4b

December 16, 2009 09-1377

Saint Paul City Council
City Hall
15 Kellogg Boulevard, West
Saint Paul, MN 55102

President Lantry and Councilmembers:

The Saint Paul Riverfront Corporation is pleased to support the resolution to implement Saint Paul Sustainable Building Policy.

The Riverfront Corporation, through its Design Center, has been actively involved in the development of this policy and the collaboration needed to bring it before this body. We served on the Core Work Group and as a member of the larger Advisory Group for the Development of the Saint Paul Sustainable Building Policy. During the process, three of our staff earned LEED accreditation from the Green Building Certification Institute and are prepared to provide sustainable design assistance to developers and building owners for site or building design or operations.

We are particularly pleased with the work that created the Saint Paul overlay matrix, which cross references several sustainable building approaches and allows the developer to choose their preferred or required program. The policy relates LEED for New Construction, Green Globes, State of Minnesota Sustainable Building Guidelines, Green Communities, Minnesota Green Star and the Saint Paul Port Authority Green Development Standards.

We believe that this policy will attract, rather than limit, new development because it will make Saint Paul even more sustainable, livable and economically attractive to new investment.

Sincerely,

SAINT PAUL RIVERFRONT CORPORATION

Timothy J. Griffin, AIA, AICP, LEED AP
Director
Saint Paul on the Mississippi Design Center